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REGION IX AIR DIVISION

Technical Support Document
For
EPA's Proposed Rulemaking
For the
California State Implementation Plan

South Coast Air Quality Management District, Rule 1420.1, Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities

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Agency: South Coast Air Quality Management District (SCAQMD)

Subject of this TSD: Rule 1420.1 - Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities
Adopted – November 5, 2010
Submitted – September 27, 2011

BACKGROUND - On November 22, 2011, the EPA designated the Los Angeles County portion of the South Coast Air Basin, excluding the high desert areas, San Clemente and Santa Catalina Islands, as nonattainment for the 2008 lead National Ambient Air Quality Standard (NAAQS).[1] CAA §§ 172(c)(1) and 191(a) require areas that are classified as moderate or above for lead non-attainment to implement reasonably available control measures (RACM) and reasonably available control technology (RACT), and to submit a plan within 18 months of the designation.

According to SCAQMD, lead-acid battery recycling facilities are the largest lead emission sources in the Basin.[2] Rule 1420.1 currently applies to two battery recycling facilities, Exide Technologies in the City of Vernon and Quemetco, Inc. in the City of Industry.

RULE SUMMARY - SCAQMD Rule 1420.1, Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities, is a new rule designed to reduce exposure and emissions of lead from large lead-acid battery recycling facilities. Definitions are included in section (c); general emission limits, including specific dates of compliance, are covered in section (d); and the applications of total enclosures are set forth in section (e). Requirements for control devices are included in section (f) and requirements for compliance plans if ambient air concentrations of lead exceed 0.12 micrograms per cubic meter averaged over 30 consecutive days, is set forth in section (g). Sections (h) and (i) include housekeeping and maintenance requirements and sections (j) and (k) define air monitoring, sampling procedures and source testing methods. Section (l) specifies requirements for new large lead-acid battery recycling facilities and sections (m) and (n) specify recordkeeping, reporting and notification requirements. Section (o) addresses the content of a study required when a facility's emissions exceed 0.12 micrograms per cubic meter over 30 consecutive days. Appendix 1 outlines the content of the initial facility status report required in subsection (n) (3) (A).

EPA EVALUATION CRITERIA - The following criteria were used to evaluate the submitted rule.

1. Air Quality Designations for the 2008 Lead (Pb) NAAQS, 76 FR 72097, November 22, 2011.
2. Staff Report, Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities, November, 2010, at 2-2.

1. Enforceability - The Bluebook (*Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations*, EPA, May 25, 1988) and the Little Bluebook (*Guidance Document for Correcting Common VOC & Other Rule Deficiencies,* EPA Region 9, August 21, 2001) were used to evaluate compliance with the CAA §110(a)(2)(A) requirement for enforceability.

2. Stringency – EPA's 2008 Lead NAAQS, 1997 Lead NESHAP, 2012 Lead NESHAP, 2008 Lead NAAQS Implementation Questions and Answers Memorandum (Scott Mathias, July 8, 2011), and the Implementation of the 2008 NAAQS Guide to Developing RACM for Controlling Lead Emissions (EPA-457/R-12-001), were used to help evaluate the RACM/RACT requirements of CAA §172(c)(1).

3. Rule Relaxation – We have evaluated this SIP rule to determine whether it would interfere with any applicable requirement concerning attainment and reasonable further progress (RFP) or any other applicable requirement of the Act (CAA §110(l)) or modify, in a nonattainment area, any SIP-approved control requirement in effect before November 15, 1990 (CAA §193).

EPA EVALUATION

Enforceability - Rule 1420.1 is generally clear in defining compliance with emission limits, recordkeeping, housekeeping, annual source testing, and monitoring and sampling requirements.

In addition, section (j) requires ambient monitoring and sampling at a minimum of four sampling sites at or near the property line of facilities subject to the rule. The exact locations of the ambient monitors must be approved by the District and are to be based on maximum expected ground level lead concentrations. Sampling is to be conducted once every three calendar days. If ambient air concentrations of lead exceed 0.12 micrograms per cubic meter, facilities must begin daily monitoring for a period of 60 days. Section (n) requires submittal of all ambient monitoring results to the District on a monthly basis.

In addition, if section (j) fence-line monitors (or any District-installed monitor) register concentrations over 0.12 microgram per cubic meter averaged over 30 days, section (g) requires a facility to submit a compliance plan to the District that identifies additional lead emission reduction measures. Section (g)(4) requires implementation of the compliance plan if levels exceed 0.15 microgram per cubic meter averaged over 30 days.

Stringency - EPA defined RACM/RACT nationally for secondary lead smelters in a document published in March 2012, well after adoption of Rule 1420.1.[3]

3. Implementation of the 2008 Lead National Ambient Air Quality Standards Guide to Developing Reasonably Available Control Measures (RACM) for Controlling Lead Emissions, EPA-457/R-12-001, March 2012.

Nonetheless, Rule 1420.1 contains all RACM/RACT elements described as necessary in this guidance. A summary of these minimum elements and how they are fulfilled in Rule 1420.1 is provided below:

- RACM includes fabric filters controlling lead process emissions from stacks. By requiring 99.97% capture efficiency for 0.3 micron particles for the filter media in subsections (f)(4) and (i)(1)(B), and by requiring that filter bags be of polytetrafluoroethylene membrane type in subsection (f)(5), Rule 1420.1 essentially requires the replacement of old fabric filters.
- RACM also includes negative pressure total enclosures and partial enclosures with wet suppression for process units and storage areas to capture fugitive process emissions. Rule 1420.1(e) requires total enclosures for battery breaking areas, storage areas, dryer areas, melting furnace areas, agglomerating furnace areas and refining and casting areas. Section (e) also requires that total enclosures be maintained at a negative pressure of a minimum 0.02 mm Hg (0.11 inches H_2O). Each total enclosure must be vented to an emission collection system that ducts the entire stream to a lead control device that meets the requirements in subsection (f) for filters and baghouses. Wet suppression is recommended for maintenance in an enclosure under negative pressure in areas where fugitive lead dust generation is a potential, "barring safety issues" in subsection (i)(1)(B).
- RACM includes paving or chemical stabilization of unpaved roads, and vacuuming paved roads for fugitive dust sources. Rule 1420.1(h), Housekeeping Requirements, requires paving and cleaning of surfaces subject to vehicular traffic, cleaning of rooftop structures, monthly inspections of enclosures and other structures that contain fugitive dust and storage methods for fugitive dust.

The following are also considered RACM/RACT in EPA's March 2012 guidance:

- Fabric filters with downstream add-on control devices, such as HEPA filters, to control uncontrolled lead process emissions from stacks. Rule 1420.1(f)(3) specifically requires a secondary lead control device on dryer emissions. In addition, Rule 1420.1(g)(2)(A)(iv) provides that compliance plans may include the installation of multi-stage lead control devices as an additional emission reduction measures for the compliance plan.
- Replacement of old fabric filters. The stringent requirements of Sections 1420.1(f)(4) and (5) will result in the replacement of any filter bags that do not meet those standards.
- Cleaning of vehicles and building exteriors. Requirements in Rule 1420.1(h) include regular cleaning of rooftops, lead-containing waste storage or recovery areas, and requirements in section (i)(2) include general cleaning of lead-contaminated equipment and materials used for any maintenance activity.

EPA also published the final residual risk and technology review revisions to the National Emission Standard for Hazardous Air Pollutants from Secondary Lead

Smelting (NESHAP) in 2012.[4] The revised NESHAP requirements represent the maximum achievable control technology (MACT) under CAA Section 112. MACT requirements apply nationwide, regardless of whether an area attains the Lead NAAQS, so we expect that MACT requirements are also needed in order to fulfill RACM/RACT. The revised NESHAP's compliance deadline for existing sources is May 19, 2011. A summary of the MACT requirements and how they are addressed by Rule 1420.1 is provided below:

- MACT for an existing source must maintain 1.0 milligrams of lead per dry standard cubic meter in any process vent gas and 0.20 milligrams of lead per dry standard cubic meter from a secondary lead smelting facility on a rolling 12-month average basis. Rule 1420.1(d) requires compliance with a facility-wide limit of 0.15 micrograms of lead per cubic meter over 30 consecutive days.
- MACT for an existing source must meet the applicable emissions limits for hydrocarbons and dioxins and furans. Rule 1420.1 addresses lead emissions only.
- MACT requires that initial performance tests and annual compliance tests be required unless a continuous emission monitoring system (CEMS) is installed. Rule 1420.1(k) requires an initial source test and annual source tests.
- MACT requires separating plastic battery casings from all other automotive batteries prior to introducing feed to a furnace. This provision is germane to dioxins and furans and is not addressed by Rule 1420.1.
- MACT requires total enclosures maintained at negative pressure for process fugitive emissions for various sources. The total enclosure must be vented to ensure negative pressure and inspections for enclosure breaches should be routine. Rule 1420.1(e) requires total enclosures for battery breaking areas, storage areas, dryer areas, smelting furnace areas, agglomerating furnaces areas and refining and casting areas maintained at negative pressure. Venting of the total enclosures to maintain negative pressure is required in subsection (e)(3). The housekeeping provisions in subsection (h)(2) require inspections and repairs of all total enclosures.
- MACT requires that a standard operating procedures manual and fugitive dust control standard operating procedures be prepared and submitted. While an operations manual is not explicitly required by Rule 1420.1, Appendix 1 to the rule requires a status report which is to include, among other things, a description of types of lead processes performed at the facility and operating schedules.
- MACT specifies EPA test methods 1, 2, 3A, 3B, 4, 12 or 29 to determine compliance for lead. Rule 1420.1 specifies EPA Method 12 and lists the other EPA-approved methods as optional test methods.
- MACT requires recordkeeping on site for 2 years and maintained for 5 years. Rule 1420.1(m)(2) requires facility records be maintained for 5 years and kept on site for 2 years.

4. NESHAP From Secondary Lead Smelting, 77 FR 556, January 5, 2012.

Based on comparison above to the MACT and national RACM guidance, and based on additional analysis provided in SCAQMD's staff report for this rule,[5] we conclude that Rule 1420.1 adequately fulfills CAA RACM/RACT requirements.

SIP Relaxation - We propose to determine that our approval of the submittal would comply with CAA section 193 because the submitted SIP rule is the first for this source category and would insure emission reductions of lead.

We propose to determine that our approval of the submittal would comply with CAA section 110(l), because the proposed SIP revision strengthens the SIP and would not interfere with the on-going process for ensuring that requirements for RFP and attainment of the NAAQS are met.

ADDITIONAL RECOMMENDATIONS FOR THE NEXT RULE REVISION –

1. For clarity, the term "worker receptor location" used in Appendix 1 should be defined in this rule or specific reference made to "Risk Assessment Procedures for Rules 1401 and 212."
2. Consider strengthening the rule by making compliance plan requirements more specific.
3. In section (f), Lead Point Source Emission Controls, consider adding additional requirements for secondary lead controls such as HEPA filters downstream of primary controls.
4. Consider adding bag leak detection systems as a facility requirement.

EPA ACTION - Rule 1420.1 fulfils the relevant CAA §110 and part D requirements. EPA staff recommends a full approval of Rule 1420.1 pursuant to CAA §110(k) (3) and §301(a).

5. Staff Report, Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities, November, 2010.

ATTACHMENTS

1. SCAQMD Rule 1420.1, Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities as adopted on November 5, 2010.

ADDITIONAL REFERENCES

1. SCAQMD Rule 1420, Emission Standard For Lead, Adopted Sept. 11, 1992.

2. "Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations," (a.k.a., Bluebook) EPA OAQPS, May 25, 1988. http://www.epa.gov/ttn/naaqs/ozone/ozonetech/voc_bluebook.pdf

3. "Guidance Document for Correcting Common VOC & Other Rule Deficiencies," (a.k.a., Little Bluebook), EPA Region 9, August 21, 2001. http://www.epa.gov/Region09/air/sips/littlebluebook2001.pdf

4. Lead (Pb) NAAQS dated November 12, 2008 (73 FR 66964) http://www.gpo.gov/fdsys/pkg/FR-2008-11-12/pdf/E8-25654.pdf

5. NESHAP From Secondary Lead Smelting dated January 5, 2012 (77 FR 556) http://www.gpo.gov/fdsys/pkg/FR-2012-01-05/pdf/2011-32933.pdf

6. NESHAP for Secondary Lead Smelting (40 CFR 63 Subpart X) http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol9/pdf/CFR-2011-title40-vol9-part63-subpartX.pdf

7. Implementation of the 2008 Lead National Ambient Air Quality Standards Guide to Developing Reasonably Available Control Measures (RACM) for Controlling Lead Emissions, EPA-457/R-12-001, March 2012 http://www.epa.gov/airquality/lead/pdfs/2012ImplementationGuide.pdf

8. Memorandum from Scott L. Matthias, 2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers, July 8, 2011